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10/611,403	07/01/2003	Theodore F. Emerson	200304331-2	1914

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

NGUYEN, HAU H

ART UNIT	PAPER NUMBER
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2628

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/611,403	Applicant(s) EMERSON ET AL.	
	Examiner Hau H. Nguyen	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 9, 18 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-17, 19-33, 35-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The response filed on October 16, 2007 has been fully considered in preparing for this Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 13-20, 22-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szamrej (U.S. Patent No. 5,990,852) in view of Callaway et al. (U.S. Patent No. 5,255,361) ("Callaway", hereinafter).

As per claim 1, Szamrej teach a method for transmitting video graphics data, comprising:
dividing a screen into a number of blocks, the blocks having contents (see Summary of the Invention, col. 2, lines 25-33, and Figs. 3A-C, *screen segmented into a sixteen by sixteen (16 x16) array of cells or blocks*, col. 5, lines 42-45);

periodically reading the contents of each one of the blocks (the monitoring thread as shown in Fig. 2A, col. 3, lines 49-65);

computing a unique value for a first block based on the contents (Fig. 2A, step 28);

comparing the unique value for the first block to a previously computed unique value corresponding to the first block (Fig. 2A, step 28, see col. 4, lines 24-55); and

transmitting the contents of the first block if the unique value for the first block is different from the previously computed unique value corresponding to the first block (Fig. 2B, col. 4, line 65 to col. 5, line 4).

Szamrej fails to explicitly teach reading the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks. However, the way of reading each block in the array as taught by Szamrej can be modified by reading each row in the block to find changes as disclosed in Callaway. As shown in Fig. 3, Callaway teaches a method of updating a display unit of a remote computer system by monitoring the changes in the display buffers row by row (col. 4, lines 18-57). Callaway further teach screen analysis begins by comparing each row of the host desk top buffer 44 with the same row in the remote image buffer 46. For each row having changed data, column numbers associated with the leftmost and rightmost changed bytes are recorded in a change table (col. 5, lines 24-35).

Since Szamrej teaches reading the contents block by block to find the changes and transmitting the changed blocks, Callaway teaches reading the block row by row (a fraction of a block) to find changes and transmitting only the changed data, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

As per claim 2, Szamrej further teaches:

storing the unique value for the first block in a table if the unique values are different (Steps 34 and 36, Fig. 2A); and

comparing the unique value of the first block to a unique value corresponding to a preceding block,

wherein the transmitting step transmits the preceding block and a repeat command if the unique value of the first block is equal to the unique value corresponding to the preceding block (*Szamrej teaches using run length encoding to send the blocks in groups, col. 5, lines 57-61, and the method for obtaining the optimal rectangle described in Figs. 3A-6C*).

As per claim 3, which is similar in scope to claim 2, further requires compressing the contents of the blocks, Szamrej also teaches this feature as described on column 2, lines 61-66.

As per claim 4, as cited above, Szamrej teaches compressing using run length encoding.

As per claim 5, as cited above, Szamrej teaches dividing the screen into plurality of blocks, and monitoring the changes of each of the blocks, and transmitting the changed blocks if the values representing the blocks are unequal. Thus, it is implied that the configuration information of the video graphics controller (*such as screen resolution to which the number of blocks are divided, col. 4, lines 7-11*) is periodically read to determine if the configuration information has changed and transmitting configuration changes if the configuration information has changed (In interpreting this claim language, the examiner bases his rejection on what is disclosed in the instant Application, on page 15, lines 8-11, the configuration information of video controller includes the screen resolution, see Szamrej, col. 4, lines 7-11).

As per claim 6, Szamrej teaches the screen is divided into a number of blocks, including rows and columns, based on the screen resolution (col. 4, lines 7-11), and it is inherent that the configuration information (based on the screen resolution, as discussed above in claim 5), is read after a row of blocks is completed in order to process the change detection.

As per claim 7, although Szamrej does not explicitly teach *periodically reading configuration of a pointing device to determine the changes*, this is taught by Callaway (*i.e. monitoring a scroll operation, col. 2, lines 20-30*).

Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to monitor changes caused by a input device.

Claim 8, which is similar in scope to claim 6, is thus rejected under the same rationale.

As per claim 10, as cited above with reference to claim 1, the combined Szamrej-Callaway also teaches surrounding blocks are marked for accelerated processing (as in Szamrej, *the surrounding blocks as shown in Figs. 3E-6C are marked to find the optimal rectangle*), if during one of the passes the unique value for a given block is different from a previously computed unique value corresponding to the given block (as in Callaway, *each line (pass) is read to identify changes*).

Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

As per claim 11, as cited above in claims 1 and 10, Szamrej-Callaway teach each pass reads a different fraction of all the blocks and any block marked for accelerated processing.

Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

As per claim 13, as cited above, Szamrej teaches a method of transmitting video graphics data comprising:

dividing a screen into a number of blocks (see Summary of the Invention, col. 2, lines 25-33, and Figs. 3A-C, *screen segmented into a sixteen by sixteen (16 x16) array of cells or blocks*, col. 5, lines 42-45);

reading a first block and at least one subsequent block (the monitoring thread as shown in Fig. 2A, col. 3, lines 49-65);

comparing the first block to a subsequent block (Fig. 2A, step 28, see col. 4, lines 24-55);

developing a repeat command based on how many subsequent blocks equal the first block (*using run-length coding*); and

transmitting the first block and the repeat command (see Fig. 3B, blocks with the same counter number of 1 (blocks with changes) would be sent together in group using run length encoding, col. 5, lines 40-60; see definition of run-length encoding).

Szamrej fails to explicitly teach all the blocks are read over a number of passes, wherein each pass reads a different fraction of all the blocks. However, the way of reading each block in the array as taught by Szamrej can be modified by reading each row in the block to find changes as disclosed in Callaway. As shown in Fig. 3, Callaway teaches a method of updating a display unit of a remote computer system by monitoring the changes in the display buffers row by row (col. 4, lines 18-57). Callaway further teach screen analysis begins by comparing each row of the host desk top buffer 44 with the same row in the remote image buffer 46. For each row having changed data, column numbers associated with the leftmost and rightmost changed bytes are recorded in a change table (col. 5, lines 24-35).

Since Szamrej teaches reading the contents block by block to find the changes and transmitting the changed blocks, Callaway teaches reading the block row by row (a fraction of a block) to find changes and transmitting only the changed data, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

Claim 14, which is similar to claim 5, is thus rejected under the same rationale.

Claim 15, which is similar to claim 6, is thus rejected under the same rationale.

Claim 16, which is similar to claim 7, is thus rejected under the same rationale.

Claim 17, which is similar in scope to claim 6, is thus rejected under the same rationale.

Claim 19, which is similar in scope to claim 10, is thus rejected under the same rationale.

Claim 20, which is similar in scope to claim 11, is thus rejected under the same rationale.

As per claim 22, Szamrej teaches a method of transmitting video graphics data comprising:

dividing a screen into a number of blocks (screen segmented into a sixteen by sixteen (16 x16) array of cells or blocks, col. 5, lines 42-45);

reading a first block of the screen (the monitoring thread as shown in Fig. 2A, col. 3, lines 49-65);

compressing the first block (col. 2, lines 61-66);

reading a second block of the screen (col. 2, lines 61-66);

comparing the first block to the second block (Fig. 2A, step 28, see col. 4, lines 24-55);

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compressing the second block with the first block if the first and second blocks are not equal; and

transmitting the compressed blocks (col. 2, lines 25-33, and lines 61-66).

Szamrej fails to explicitly teach all the blocks are read over a number of passes, wherein each pass reads a different fraction of all the blocks. However, the way of reading each block in the array as taught by Szamrej can be modified by reading each row in the block to find changes as disclosed in Callaway. As shown in Fig. 3, Callaway teaches a method of updating a display unit of a remote computer system by monitoring the changes in the display buffers row by row (col. 4, lines 18-57). Callaway further teach screen analysis begins by comparing each row of the host desk top buffer 44 with the same row in the remote image buffer 46. For each row having changed data, column numbers associated with the leftmost and rightmost changed bytes are recorded in a change table (col. 5, lines 24-35).

Since Szamrej teaches reading the contents block by block to find the changes and transmitting the changed blocks, Callaway teaches reading the block row by row (a fraction of a block) to find changes and transmitting only the changed data, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

Claim 23, which is similar in scope to claim 4, is thus rejected under the same rationale.

Claim 24, which is similar in scope to claims 10-11, is thus rejected under the same rationale.

As per claim 25, Szamrej teaches a computer system for communicating with a remote console (Fig. 1), comprising:

a video graphics controller having a frame buffer (not shown but inherently included in a typical computer system);

a communications device (network 12); and

a processor coupled to the video graphics controller and the communications device, the processor configured to: divide the frame buffer into a number of blocks (as cited above);

periodically read the frame buffer and determine whether any of the blocks have changed since a previous reading (reading the contents of the video memory, col. 3, lines 55-65); and

transmit changed blocks to the remote console via the communications device (as cited above).

Szamrej fails to explicitly teach all the blocks are read over a number of passes, wherein each pass reads a different fraction of all the blocks. However, the way of reading each block in the array as taught by Szamrej can be modified by reading each row in the block to find changes as disclosed in Callaway. As shown in Fig. 3, Callaway teaches a method of updating a display unit of a remote computer system by monitoring the changes in the display buffers row by row (col. 4, lines 18-57). Callaway further teach screen analysis begins by comparing each row of the host desk top buffer 44 with the same row in the remote image buffer 46. For each row having changed data, column numbers associated with the leftmost and rightmost changed bytes are recorded in a change table (col. 5, lines 24-35).

Since Szamrej teaches reading the contents block by block to find the changes and transmitting the changed blocks, Callaway teaches reading the block row by row (a fraction of a

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block) to find changes and transmitting only the changed data, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

As per claim 26, Szamrej also teaches a hash code (cyclic redundancy code, as defined in paragraph 53 of the Specification) is calculated and stored for each block when the block is first read, and wherein subsequent changes are determined for a given block by calculating a new hash code and comparing the new hash code to the stored hash code (col. 2, lines 34-46, and col. 4, lines 24-37).

Claim 27, which is similar in scope to claim 13, is thus rejected under the same rationale.

Claim 28, which is similar in scope to claims 25 and 26, is thus rejected under the same rationale.

Claim 29, which is similar in scope to claim 4, is thus rejected under the same rationale.

Claim 30, which is similar in scope to claim 5, is thus rejected under the same rationale.

Claim 31, which is similar in scope to claim 6, is thus rejected under the same rationale.

Claim 32, which is similar in scope to claim 7, is thus rejected under the same rationale.

Claim 33, which is similar in scope to claim 6, is thus rejected under the same rationale.

Claim 35, which is similar in scope to claim 10, is thus rejected under the same rationale.

Claim 36, which is similar in scope to claim 11, is thus rejected under the same rationale.

Claim 37, which is similar in scope to claim 25, is thus rejected under the same rationale.

Claim 38, which is similar in scope to claims 25 and 26, is thus rejected under the same rationale.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szamrej (U.S. Patent No. 5,990,852) in view of Callaway et al. (U.S. Patent No. 5,255,361), and further in view of Fujimoto (U.S. Patent No. 5,473,348).

As per claim 12, Szamrej teaches the blocks contain color value (col. 1, lines 20-25). The combined Szamrej-Callaway reference fails to teach *condensing the color values into 6-bit red-green-blue color values before computing the unique values*. However, it is well-known in the art at the time the invention was made to convert the color values of pixels into 6-bit RGB as described in Fujimoto col. 7, lines 31-35, the advantage of which is to reduce the amount of data per pixel in order to transmit over a low bandwidth network.

Claim 21, which is similar in scope to claim 12, is thus rejected under the same rationale.

Response to Arguments

4. Applicant's arguments with respect to the remaining claims have been considered but are moot in view of the new ground of rejection above.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 571-272-7787. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

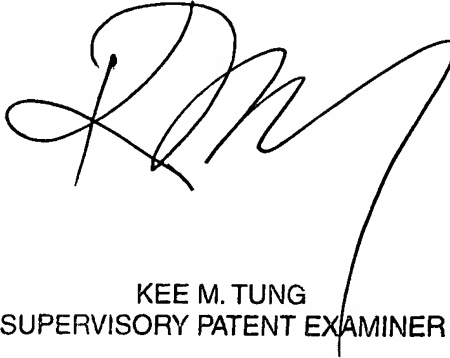
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H. Nguyen

1/3/2008



KEE M. TUNG
SUPERVISORY PATENT EXAMINER